Science Explains Why Your Hair Is Falling Out

The History, Told in Diagrams, of How the Seborrhea Germ Which Causes Dandruff is Conveyed from One Infected Head to Another, and How the Germs Burrow Down to the Roots of the Hairs and Destroy Them.

1—The Hairdresser and Barber Infect the Brush with the Seborrhea Microbe from Some Head Afflicted with Dandruff.

2—These Germs Cling to the Bristles of Brushes and Combs and Can Only Be Killed by Thorough Sterilization.

3—This Same Brush, Usually Without Being Even Washed, Is Used on the Next Customer, Thus Infecting the Hair with the Germ.

4—Root of a Hair, Showing—
(A) Oil Gland;
(B) Hair-raising Muscle.
(C) Nourishing pulp.

5—Microscopic Enlargement of Root Base, Showing Descent of Dandruff Microbes Down the Hair Follicle as Far as AA.

6—The Microbes, Reaching the Bottom of the Follicle, Attack the Pulp at the Base of the Hair.

7—The Pulp Destroyed, the Hair Receives No Nourishment, Shrinks, Dries Up and Is Then Ready to Fall Out.

How the Unsanitary Customs of Barbers and Hair-Dressers Spread the Germs That Make Bald Heads--and Other Unpleasant Things That Are Quite Unsuspected

THAT most of our skin and hair troubles are caught in the shops of the barber and hair dresser—

That this is due to the ignorance and indifference of the barbers and hair dressers—

That their establishments could easily be made safe for the public to patronize instead of almost certain sources of infection, have been pointed out in previous articles in these columns.

While the barber could and should attend to his own reform, it is evident that he will not do so until compelled by law. To appreciate the hopelessness of persuading the barber to sterilize his shop it is only necessary to ask him a few questions about his business. The farmer understands about tuberculosis and other diseases which must be kept out of his milk. The cattle man can tell you all about glanders and farcy, anthrax and other maladies which enter the field of his activities. The plumber knows that typhoid lurks in the sewers, and how to protect your homes from it.

But if you ask a barber concerning "alopecia areata," a disease he is constantly passing from customer to customer, he will think you are talking about one of Mr. Hammerstein's new grand opera stars.

Not one barber in a hundred knows that dandruff is a germ disease, how it is transferred from one person to another in his shop, how it causes the hair to fall out, how the hair follicles replace the diseased hair with new ones, which in turn become diseased and fall out, until in the end, the hair follicles are worn out and can supply no more hairs.

Should you ask him about your dandruff and thinning hair, he will bring you a bottle of hair tonic. To apply this vigorously and to singe your hair is all he knows by the way of remedy.

In most States the matter of the barber shops is largely under control of local boards of health. This means that barber shops are left to their own devices until some flagrant case is called to the attention of the authorities. In one town the barber shops may be inspected occasionally, while in neighboring places they are ignored.

In order to have safe barber shops laws must be passed making it clear just what a barber must and must not do. There must be adequate penalties for violation, and above all, it is necessary to have the shops inspected too frequently for it to be safe for a barber to take a chance.

There will be found three classes of barber and hair dresser. The one who will make his shop clean and safe because he knows it is right. The one who will do the same because he believes it the best policy. These two classes will give no trouble after proper laws have been passed, and the public has understood its rights.

The third class of barber will not do anything in the way of sterilizing his shop except from fear of punishment. This class is not only a menace to customers, but it places an unfair burden of competition on the barbers who would comply with the law.

It is bound to cost more to run a sanitary barber shop, sanitary in fact, not merely in name, than a careless one. Contaminated milk can be placed on the market cheaper than clean milk. Rigid inspection of barber shops is as necessary to protect the clean shop from the cheap prices of dirty shops as it is to guard the clean dairy or bakery from its dirty rival.

The clean and honest barber should be further guarded. There are several grades of bay rum and witch hazel on the market. The best and most expensive grades he knows are made from pure materials, and whether or not they should be used on the face and scalp, at least they are not poisonous. He also knows that the cheapest grades are often adulterated with refined wood alcohol and other poisons. The middle grades are a gamble. Some are safe and some are poisonous.

There is always the temptation for the honest barber to take a chance with the middle grades. Whatever he does, he must meet the competition of the wood alcohol user on the next street.

In only four States of the Union is there a law against using wood alcohol externally. In the other States the barber is free to use wood alcohol in preparations, even if he is aware of it. The manufacturer is liable to punishment if detected.

Recently the Committee on Prevention of Blindness of the New York Association of the Blind has pursued some of these manufacturers in the criminal courts, and had them punished. It was done after their attention had been called to several cases of blindness which seemed to be connected with barber shops. Investigation proved that these shops were using bay rum and witch hazel containing wood alcohol in the refined state called "Columbian spirits."

Every one knows better than to drink wood alcohol. Where death and blindness have resulted from drinking, it has been mistaken for grain alcohol.

Few people understand that the fumes of wood alcohol are poisonous enough to cause blindness. If a wood alcohol preparation is sopped on the face after a shave and the towel containing it held there a moment it is enough to cause poisoning of the optic nerve.

Wood alcohol fumes do not take effect at once. You will walk out of the barber shop feeling quite as usual. About eighteen hours later dizziness may appear, followed by total or partial blindness. There is no known treatment for wood alcohol blindness. The poison seems to have an affinity for the optic nerve and singles it out above all other parts of the body for attack.

Breathing very small amounts of wood alcohol fumes at frequent intervals will not cause blindness, but weakness of the eyes and defective vision. If your eyes have been troubling you for some time it may be your barber's bay rum or witch hazel or the bottle of perfume given you for Christmas, or even the fumes from your chafing dish.

In the State of Montana the law requires that the following notice be printed on containers of wood alcohol:

"The fumes of wood alcohol burned in a close room if inhaled are injurious to the eyesight, often producing total blindness."

When wood alcohol preparations of witch hazel or bay rum are applied to the face and then followed by a hot towel, the hair dresser or barber has done his worst. The hot towel opens the pores of the skin and causes the blood to absorb the poison, at the same time the nose inhales quantities of the fumes.

Though the barber and hair dresser pass numerous diseases from patron to patron, there is one malady in particular which they distribute so uniformly that virtually nobody is without it. This is dandruff, caused by the microbes of seborrhea.

Dandruff does not cause sores and immediate baldness as do ringworm and alopecia areata, yet it is the largest cause of our hair troubles. To understand how dandruff slowly but surely causes falling hair, thinning hair and finally baldness, it is necessary to consider the hair microscopically. The hair is a tough, hard, elastic shaft held in a little tube in the scalp called a follicle. The hair has no blood circulation like other parts of the body, and is, except at the inner end, nearly dead.

For years barbers have been singeing the hair ends on the theory that the hair is a tube containing nutritive juices which flow out of the end when the hair is cut, just as sap runs out of the stalk of a plant when it is cut. The singeing was supposed to close the hair end and preserve the juices. No barber would honestly recommend singeing if he had ever studied the hair under a microscope.

Near the point where the hair protrudes from the skin a little oil gland is found. This gland supplies the grease which is necessary for the preservation of the hair. Water and dampness are the natural enemies of hair. To keep the hair damp or wet for long periods is to ruin it utterly.

The barber uses lather on the beard before shaving because the soap removes the oil and allows the water to attack the hair, making it so soft that the razor mows it down easily.

The microbe of dandruff having found its way to the scalp burrows down the tube or follicle which holds the hair. On its march, after the manner of microbes, it starts an irritation. The oil-gland speedily becomes out of order. It either clogs up or secretes fatty lumps. In the first case we have the common form of dry dandruff. In the second case the result is greasy scales.

On goes the microbe down the follicle, causing disturbance as it proceeds, but doing little direct damage to the hair until it reaches the bottom.

A hair is in some ways like a tooth. Both, for instance, receive their nourishment from a pulp which reaches up a short way into the root. Both are hard on the outside, and the idea of applying nourishment to the hair is as ridiculous as applying it to a tooth. Nobody advertises a tooth powder as a "tooth food," yet it is just as plausible as to suppose that medicine applied to the hair will nourish it.

Arrived at the bottom of the follicle, the dandruff microbe attacks the pulp which nourishes the hair.

The pulp, like the nerve of a tooth, promptly flares up at the first touch of the microbe's poison. It first becomes inflamed and then shrinks and detaches itself from the hair. The hair, now starved and without any anchor, shrivels and is ready to fall out the next time you pass a comb through your hair.

Nature is not easily discouraged, and having lost the hair she seems to have a way of getting rid of the microbes long enough to start the pulp at work giving birth to a new hair. When this is full grown it is subject to a new invasion of the dandruff microbe and the loss of the new hair.

It is estimated that the normal life of a hair is from ten to twelve years. Nature is ready to rethatch your head every ten years or oftener, and keep it up for one hundred years. But with dandruff she has to give you a new outfit every year or so on an average. This exhausts the fecundity of the follicles and your baldness is the result of their having given birth to their last hair long before Nature planned.

It is important to remember that the hair is very elastic. It is easily stretched, but once stretched it never springs back, as does rubber and other elastic substances. When hair has been stretched it has been ruined, and though it may be alive and healthy at the root, it will soon break where it has been stretched.

Men rarely stretch their hair enough to injure it, because it is so short that it can't be pulled without tugging at the roots and hurting.

Women seize their tresses near the head, thus relieving the scalp from all pressure, and tug away with their combs as hard as they please.

When a hair comes out you can easily tell what caused its fall. If both ends look alike you may be sure it broke off on account of stretching or of your curling iron. If it shows a tiny bulb at one end you may thank the dandruff germ, unless the hair is very long. In this event it may have lived in your head its allotted decade and died respectably of old age.

Hair Is Very Elastic, but Once Stretched, It Never Recovers and Soon Breaks. In Combing or Brushing the Hair Never Use Force Enough to Strain or Stretch the Hair. Every Hair That Is Stretched Will Break Off or Come Out Entirely.

If There Is Wood Alcohol in Your Witch Hazel or Bay Rum This Hot Towel Method of Applying It Is Likely to Cause Blindness. Several Cases of Blindness Caused by Barber's Toilet Washes Have Been Brought Before the Courts Recently.

How a Baby's Brain Tells Just What Lullabies to Sing Him

IT may soon be possible to determine with almost mathematical accuracy which of the time-honored lullabies is best calculated to put uneasy babies to sleep.

Dr. Silvio Canestrini, of Graz, an eminent scientist, has invented a delicate instrument by which it is possible to ascertain the effect of any given sound or series of sounds upon a baby's brain-pulse and respiration.

The idea occurred to him one day when he placed his hand upon the large fontanelle, or "soft-spot" of a new born baby's head and felt the throbbing of the brain-pulse beneath his fingers.

The apparatus which he constructed is applied to the fontanelle and simultaneously another apparatus is used to record the baby's respiration-curve. This instrument is called a pneumograph and is applied to the baby's abdomen.

Dr. Canestrini made nearly 300 separate tests to show the effect of different noises or sounds upon babies. In these experiments he used over seventy babies of ages from six hours to fourteen days. Some of the babies were asleep and others awake.

In the diagrams shown on this page and which are from photographs of the records obtained by Dr. Canestrini with his various machines, the top line shows the respiration-curve as obtained with the pneumograph. The second line was obtained by means of the special apparatus applied to the baby's fontanelle and shows the brain-pulse curve

Normally, Dr. Canestrini points out, a new born babe's respirations are between forty and fifty a minute, and his pulse-beats between 120 and 140 a minute, and each gives a more or less uniform curve-line. A noise or other sensation which annoys him usually results in great variations in both curves.

Chart No. 1, shown on this page, shows just how soft-whistling helped to soothe a crying child. Before the whistling began the baby was crying lustily, a condition which is shown very plainly in the respiration-line by its marked irregularities.

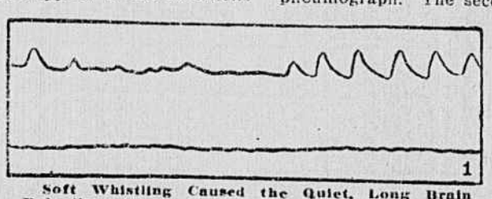
As the whistling begins, however, these regularities disappear while the brain pulse waves become longer.

In Chart No. 2, the mountain-like irregularities in the respiration-line were the effect of a person entering the room and disturbing a baby.

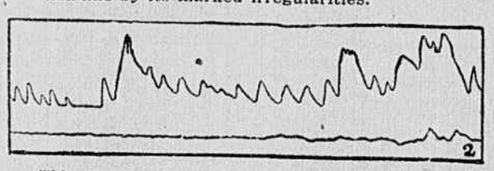
The effect of sudden noises upon a baby is well illustrated in Chart No. 3, where, at the point marked by the cross, the baby undergoing the experiment was startled by the noise of a shot from a toy-pistol. The respiration line reflected this disturbance by a sudden ascent and a similar effect was recorded by the brain-pulse line, although in a somewhat lesser degree.

Dr. Canestrini concluded that wherever a record of this kind shows an increase of pulse or an increased respiratory activity, it may be attributed to some unpleasant sensation which disturbed the infant, while a decrease in pulse or respiration and an even curve-line indicates a pleasant sensation.

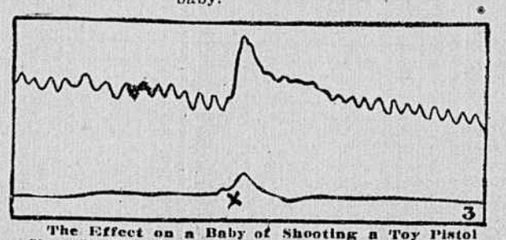
It ought not to be difficult therefore with instruments of this kind to compare the relative efficacy of different lullabies upon a particular child, and it might very well be possible by a series of experiments to ascertain which lullaby is calculated to be most effective with any baby.



Soft Whistling Caused the Quiet, Long Brain Pulsations Shown in the Lower Line; the Upper Line Is the Record of the Tranquil Respiration. The Subject Was a Child Three Days Old.



This Heightening and Irregularity of the Brain Pulse Shown in the Lower Line Was Caused by a Person Entering Unexpectedly the Baby's Room. The Respiration Record Shows the Disturbance in the Breathing.



The Effect on a Baby of Shooting a Toy Pistol Near It. The Cross Marks, the Jump of Pulse and the Disturbance in Respiration at the Moment of Explosion.